Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1, 24, and 25. These sheets, which include Figures 1, 24, and 25, replace the original sheets including Figures 1, 24, and 25.

Attachment(s): Replacement Sheet(s)

REMARKS

In response to the Office Action dated June 21, 2010, Applicants have amended claims 1, 4, 6, and 8. No claims have been canceled and no new claims have been added. Support for the amendments may be found throughout the specification and original claims as filed, for example, in original claims 2 and 6. No new matter has been added. The above amendments are not to be construed as acquiescence with regard to the Examiner's rejections and are made without prejudice to prosecution of any subject matter removed or modified by this amendment in a related divisional, continuation or continuation-in-part application. Following the amendments, claims 1-12 are pending and under examination. Favorable reconsideration of the subject application is respectfully requested in view of the above amendments and the following remarks.

DRAWINGS

The Examiner alleges that new corrected drawings in compliance with 37 C.F.R. § 1.121(d) are required because the details of Figures 1, 24, and 25, cannot be properly discerned. Applicants submit herewith replacement drawings of Figures 1, 24, and 25, to comport with 37 C.F.R. § 1.121(d).

CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 5-6 and 8 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Specifically, the Examiner alleges that claim 5 is indefinite because the term "the Fn1 domain," lacks antecedent basis. Applicants have amended claim 1 to recite "an Fn1 domain"; thus, obviating this basis of rejection.

The Examiner further alleges that claim 6 is indefinite because the term "the protein molecule having the Fn1 domain," lacks antecedent basis. Applicants have deleted this term from claim 6; thus, this basis of rejection is moot.

The Examiner also alleges that claim 8 is indefinite because the term "the gene introduction reagent," lacks antecedent basis. Applicants have amended claim 8 to depend from claim 7, which recites "a gene introduction reagent"; thus, obviating this basis of rejection.

Applicants respectfully submit that one having skill in the art would recognize that the metes and bounds of claims 5, 6, and 8, are both clear and definite. Reconsideration and withdrawal of these bases for rejection are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102(B), HANENBERG ET AL.

Claims 1-4, 7-8, and 11-12, stand rejected under 35 U.S.C. § 102 (b), as allegedly being anticipated by Hanenberg *et al.* (*Human Gene Therapy* 8: 2193-2206, (December 12, 2007)).

Applicants respectfully traverse this basis for rejection and submit that Hanenberg *et al.* fail to anticipate the presently claimed invention because they do not teach each and every element of the claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

Applicants, without acquiescence, have amended claim 1 to recite an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain, or a variant thereof.

The Examiner alleges that Hanenberg *et al.* teach that polypeptides comprising two fibronectin fragments, CH-296 and CH-271, exhibit biological activity and improve gene transfer efficiency. In contrast, the presently amended claims are directed to an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain, or a variant thereof. Applicants respectfully submit that the CH-271 and CH-296 fragments taught by Hanenberg *et al.,* comprise Fibronectin Type III domains, but do not comprise amino acids 21 to 241 of SEQ ID NO: 11, or any Fibronectin Type I (Fn1) domains, as claimed. Thus, Hanenberg *et al.* do not teach an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain, or a variant thereof, as claimed.

Accordingly, Hanenberg *et al.* fail to anticipate the presently claimed invention because they do not teach each and every element of the claims. Reconsideration and withdrawal of this basis for rejection are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102(B), RABBANI ET AL.

Claims 1-4 and 7-8 stand rejected under 35 U.S.C. § 102 (b), as allegedly being anticipated by Rabbani *et al.* (U.S. Patent Application Publication No. 2001/0006814).

Applicants respectfully traverse this basis for rejection and submit that Rabbani *et al.* fail to anticipate the presently claimed invention because they do not teach each and every element of the claims. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner alleges that Rabbani *et al.* teach that fibronectin, a fibronectin fragment, or fibronectin containing compound can be used for the covalent attachment of a nucleic acid component for delivery of nucleic acid to cells. Applicants respectfully submit that Rabbani *et al.* do not disclose or teach any fibronectin fragments, let alone an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain, or a variant thereof, as claimed.

Moreover, Applicants respectfully submit that the Rabbani *et al.* reference does not contain an enabling disclosure of the presently claimed actin acting substances used for increasing the efficiency of introducing a target substance into a cell, and thus, Rabbani *et al.* cannot be properly asserted against the presently claimed invention as an anticipatory reference. "In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'... ." *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). "The disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation." *Elan Pharm., Inc. v.*

Mayo Found. For Med. Educ. & Research, 346 F.3d 1051, 1054, 68 USPQ2d 1373, 1376 (Fed. Cir. 2003). Here, without disclosing or suggesting any particular domains or amino acid sequences of fibronectin, let alone any fragment that increases the the efficiency of introducing a target substance into a cell, the skilled artisan would require undue experimentation to determine the presently claimed actin acting substances comprising at least at least amino acids 21 to 241 of SEQ ID NO: 11.

Accordingly, Rabbani *et al.* fail to anticipate the presently claimed invention because they do not teach each and every element of the claims. Reconsideration and withdrawal of this basis for rejection are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 103(A)

Claims 1-12 stand rejected under 35 U.S.C. § 103 (a), as allegedly being unpatentable over Hanenberg *et al.* or Rabbani *et al.* in view of Skorstengaard *et al.* (*Eur. J. Biochem.* 161, 441-453, 1986) and Kitazato *et al.* (U.S. Patent No. 7,226,786).

Specifically, the Examiner alleges that Hanenberg *et al.* and Rabbani *et al.* teach as set forth in the forgoing anticipation rejections, but that these references fail to teach wherein the fibronectin compositions for increasing efficiency of introducing a target substance into a cell comprises an Fn I domain of amino acids 21-577 of SEQ ID NO: 11, or wherein the fibronectin comprises a particle. However, the Examiner alleges that Skorstengaard *et al.* disclose the complete sequence of bovine plasma fibronectin, and thus, Skorstengaard *et al.* teach at least amino acids 21-577 of SEQ ID NO: 11. Furthermore, the Examiner alleges that Kitazato *et al.* disclose the labeling of gene therapy vectors with gold colloid. Therefore, the Examiner concludes that it would have been obvious to substitute the fibronectin used in the compositions of Hanenberg *et al.* and Rabbani *et al.* with the fibronectin of Skorstengaard *et al.* because it is *prima facie* obvious to substitute art recognized equivalents for the same purpose. The Examiner further concludes that it would have been obvious to modify the gene delivery particels described in Hanenberg *et al.* and Rabbani *et al.* with the gold colloids of Kitazato *et al.* because the prior art teaches that this class of modification is well suited for gene delivery vehicles and is useful for visualization of the modified particles.

Applicants respectfully traverse this basis for rejection and submit that the Examiner has failed to provide a sufficient basis for one having ordinary skill in the art to predictably arrive at the presently claimed invention with any reasonable expectation of success. Thus, the Action fails to establish a *prima facie* case of obviousness against the presently claimed invention

It is the Examiner's burden to establish *prima facie* obviousness. *See In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993). Obviousness requires a suggestion of all the elements in a claim (*CFMT, Inc. v. Yieldup Int'l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003)) and an explicit, apparent reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does with a reasonable expectation of success. *See KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007).

Applicants respectfully submit that neither Hanenberg *et al.* nor Rabbani *et al.* disclose or suggest an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain, or a variant thereof, as claimed. Furthermore, Applicants submit that Skorstengaard *et al.* does not remedy the insufficiencies of Hanenberg *et al.* or Rabbani *et al.* Applicants submit that Skorstengaard *et al.* merely discloses the primary sequence of bovine fibronectin and domain structure of bovine fibronectin, but are completely silent with regard to an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 constituting an Fn1 domain that can be used for increasing the efficiency of introducing a target substance into a cell. In fact, Skorstengaard *et al.* do not disclose that fibronectin or any portion thereof could be used for increasing the efficiency of introducing a target substance into a cell. Accordingly, Hanenberg *et al.*, Rabbani *et al.*, and Skorstengaard *et al.* collectively fail to disclose or suggest all the elements of the presently claimed actin acting substances. Moreover, the references cited by the Examiner are not enabled for an actin acting substance comprising at least amino acids 21 to 241 of SEQ ID NO: 11 because they do not teach or suggest that this amino acid sequence can be used for increasing the efficiency of introducing a target substance into a cell. Thus, in view of the references cited by the Examiner, it would require undue experimentation to practice the presently claimed actin acting substances.

Thus, Applicants respectfully submit that the Examiner's line of reasoning is insufficient to establish a *prima facie* case of obviousness against the claimed because the Examiner has provided no technical evidence or reasoning to support the allegation that a person of ordinary skill in the relevant field would devise an actin acting substance that increases the efficiency of introducing a target substance into a cell wherein the substance comprises at least amino acids 21 to 241 of SEQ ID NO: 11 with any reasonable expectation of success. *See KSR v. Teleflex, Inc.* at 1741, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.").

In addition, Applicants respectfully submit that Kitazato *et al.* does not remedy the insufficiencies of Hanenberg *et al.*, Rabbani *et al.*, and Skorstengaard, and thus, all four references cited by the Examiner individually and collectively fail to establish a *prima facie* case of obviousness against the presently claimed invention.

Accordingly, for at least these reasons, Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case against the presently claimed one-pot synthesis.

Reconsideration and withdrawal of this basis for rejection is respectfully requested.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC

/William T. Christiansen/
William T. Christiansen, Ph.D.
Registration No. 44,614

WTC:MJM:jto

Enclosures:
3 Replacement Sheets of Drawings (Figures 1, 24, and 25)

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

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